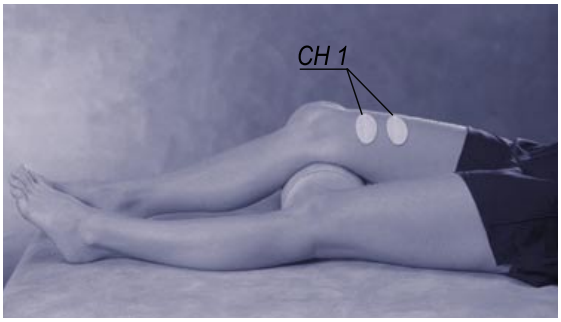
NMES – a complement to cruciate ligament rehabilitation

NMES (Neuromuscular electrical stimulation) is an excellent complementary treatment on cruciate ligament injury. Elin Johansson is a physiotherapist working with the Swedish National Athletics Team. She uses electrical muscle stimulation on Sweden's top athletes as well as on patients exercising on a recreational basis. Below is Elin's rehabilitation program for injured cruciate ligaments in which NMES takes a natural part.



"Anterior cruciate ligament injury is a common sports injury that I have to deal with on a daily basis. Treatment of injured anterior cruciate ligament consists of a gradually intensified rehabilitation program and my view is that NMES is an important tool throughout the entire rehabilitation process.

Initial stage: Focus on getting the circulation and mobility of the knee joint going as well as getting the structures accustomed to increased workload. A lot of patients have difficulties finding the muscular function of the quadriceps muscles after surgery. When "open chain" is allowed, electrical muscle stimulation will help them regain control of these muscles in an optimum and effective way. The patient can preferably use the hand switch to increase control of the stimulation.

Intermediate stage: Focus on improving balance and knee control, gradually increase muscle strength and endurance. During this stage the stimulator is an obvious complement to many of the exercises I choose for my patients. A few examples of exercises to be carried out with electrical muscle stimulation are: Knee flexion ("closed chain"), leg extension and single leg standing on a balance board. There is often a specific need to exercise the vastus medialis oblique. This muscle is important for optimum knee extension but it also has a stabilising function of the kneecap. With electrical muscle stimulation I manage to exercise this muscle in an optimum way. It even works as a perfect home exercise for the patient.

Late stage: To be able to return to sports training after a cruciate ligament injury muscle strength, endurance and proprioception need to be at their best. Besides all exercises becoming harder the patient needs to be prepared for his/her specific sport. When performing sports specific training, it is a strong advantage to combine the training with electrical muscle stimulation.

Goal: An athlete, with complete function, back on the sports arena with new gold medals in sight.

Advantages with NMES:

- I can be very specific when exercising the muscles.
- My patients receive effective training at home.
- With NMES I can give very accurate doses of training.
- Electrical muscle stimulation also has a pain relieving effect."

By Elin Johansson. *Physiotherapist in National Swedish Athletics Team's Medical Team and at the Sports Injury Clinic in Johanneshov, Sweden.*

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